Institution: University College London (UCL)

Unit of Assessment: 34 - Communication, Cultural and Media Studies, Library and Information Management

1. Unit context and structure, research and impact strategy

Unit context

The Department of Information Studies (DIS) offers new insights into 'wicked' problems and contemporary debates in our information and data-rich society. Our priorities are to lead interdisciplinary research collaborations using intellectually ambitious critical research approaches to solve complex information problems, grounded in our distinctive coalition of researchers, combining social science, humanities and computer science scholars with expertise across information studies. We have more than tripled grant capture to **a total of £3.7m from UKRI, EU and charities, plus £0.4m from RCEF**. DIS, in the Faculty of Arts and Humanities (A&H), is the largest group in the UoA, of 20 staff (19.6 FTE), comprising: 17 researchers from DIS, one from the Centre for Editing Lives and Letters (CELL), one from Department of Science and Technology Studies (STS), and one from BASc (Arts and Sciences). DIS celebrated 100 years as a leader of library, archival and information science, beginning as the first British School of Librarianship in 1919. It expanded beyond Library and Information Studies to embrace Archives and Records Management in 1947, Information Science in 1973, and in the 2000s, Digital Humanities, and Publishing, bringing together a portfolio of programmes unmatched in the UK. We engage with alumni and honorary professors, and integrate research and doctoral activities into five international Masters programmes, bringing academic insights to bear on key issues in society. Since 2014, DIS has recruited 11 research staff, made a new professorial appointment and refreshed all senior management positions. Of nine new academic hires, five were Early Career Researchers (ECRs), appointed to their first academic post, enabling us to renew our research strategy.

Unit structure

The UoA hosts five research groups in DIS and one centre that act as incubators for cross-disciplinary and interdisciplinary research, foster doctoral and ECR development and translate research to industry and government: **(i) The Centre for Archives and Records (ICARUS)** is a leading international centre of expertise in archives and record management theory, methodology and practice; **(ii) UCL Digital Humanities (UCLDH)** embraces digital humanities researchers from multiple disciplines (computer science, heritage science, archaeology, modern languages, spatial analysis, geography, medical physics), and works with heritage and community organisations. UCLDH is affiliated with UCL's Institute of Advanced Studies, a space supported by A&H and the Faculty of Social and Historical Sciences (SHS) dedicated to fostering advanced research dialogue and debate across disciplines; **(iii) The Centre for Publishing (CfP)** researches with industry partners, including the Publishers Association and Booksellers Association, to explore diversity and inclusivity, open access, consumer insight, and bookselling**; (iv) Knowledge, Information and Data Science (KIDS)** develops methodologies, algorithms and paradigms that bridge logic-based AI and statistical machine learning and enable practical application, such as an innovative knowledge-base for cross-searching and semantic enrichment of heritage collections; and **(v) FOIL (Forum on Information Literacy Research)** promotes Information Literacy research internationally and translates research outcomes into professional practice.

Founded by **Jardine**, the *Centre for Editing Lives and Letters (CELL)* is a collaborative research laboratory of humanities scholars seeking digital solutions to archival questions. CELL's expertise focuses on the Early Modern period (1500-1800).

Research strategy

Our strategic objective is to position the UoA as the leader in information studies by 2025 and beyond, to transform how information is understood in society, find new solutions to information problems and challenges faced in professional practice, and extend our reach into other disciplinary areas, through our distinctive approach to research and unique group of disciplines.

This objective reflects our leadership in developing disciplines internationally, including leading innovations in digital humanities in Italy, China, Russia and Latin America (**Terras**, **Mahony**, **Nyhan**, **Crymble**); in critical information literacy (**Lloyd**); in archival science and in the new field of community archives (**Flinn**'s foundational definition adopted by the Mellon Foundation). Our strategy has three aims that seek to:

1. Address real world information practices and challenges through collaborative research with public policy impact;
2. Be local: be global;
3. Cultivate an agile, innovative and responsive research culture to build sustainable, future-proof practice.

1. Address real world information practices and challenges through collaborative research with public policy impact. We have a proven track-record in finding solutions for real-world information challenges and shaping and informing public policy. Aim 1 exemplifies and supports UCL's strategic objective 'to cross boundaries to increase engagement between disciplines and communities' by promoting synergistic thinking in the interdisciplinary field of information studies and leading networks of expertise for innovative thinking to address scholarly and complex real-world problems. Building on long established participatory research by **Flinn** in community archives, *MIRRA* research was co-produced with care leavers, exploring their information rights and producing new recommendations about how these rights should be enabled (**Shepherd**, **Lomas**, **Sexton**). *MIRRA* public policy briefings were discussed with the UK Information Commissioner's Office, The National Archives, Ofsted, and influenced practice with the British Association of Social Workers. Significant public policy outcomes were achieved by **Duke-Williams**'s *UK Census & Administrative data LongitudinaL Studies Hub* (CALLS-Hub) delivered with the Office for National Statistics (ONS), by combining expertise in geographic data and spatial systems to develop methodologies and training for researchers; while *CeLSIUS* has facilitated access to the ONS Longitudinal Study since 2012, and by 2025 will redesign support for remote users, innovate linkage of data from the 2021 Census, and create new Census research. Further projects include *Academic Book of the Future,* combining interdisciplinary expertise from information studies and humanities to explore how scholarly work in the Arts and Humanities will be produced, read, and preserved in future (**Rayner**, **Canty**). **Lomas** created a new unified definition of Research and Development for all knowledge domains, in *Defining R&D for the Arts and Creative Industries*, working with NESTA and Arts Council England. **Smallman**'s *CODEsign* project extended public understanding of science and engaged wider voices in technology and policy development.

Our research projects have helped redefine the information disciplines and innovative practice solutions for professions. For example, *Enlightenment Architectures* with the British Museum uses computational interrogation to enhance understanding of the intellectual structures of Sloane's catalogues and to produce new data-mining techniques (**Nyhan**, 2016-2021). **Valeonti** will (2019-2021) develop digitisation technologies to enable museum visitors to design customisable merchandise with artworks and give real-time insight into museum audiences.

2. Be local: be global. We embody world-leading expertise in digital user engagement in critical cultural heritage, locally and globally, which enables us to respond to UCL's objective 'to engage with research priorities … at the global, national and local levels' to enable innovative solutions while exploring situated research questions. Our cross-disciplinary collaborations led to improved discovery and (re)use of digital cultural heritage, working with the Bodleian Library, Fitzwilliam Museum, British Museum and many European and North American museums (**Nyhan**, **Terras**, **Flinn**, **Valeonti**, **Bikakis**, **Symonds**, **Crymble**). For example, the *CrossCult* consortium (UCL, the National Gallery and partners from seven European countries - France, Greece, Italy, Luxembourg, Malta, Spain, UK), employed interdisciplinary approaches between humanities and computer science researchers, museum professionals and companies. It developed innovative technology tools for presenting history to non-specialist audiences in engaging ways and reflected on the cross-border interconnections among cultural heritage, citizens' viewpoints and physical venues (Horizon 2020, **Bikakis**, **Vlachidis**, **Terras**). *Oceanic Exchanges* with the British Library (BL), combined expertise in computational periodicals research from six countries (Finland,

Germany, Mexico, Netherlands, UK, USA) to examine patterns of information flow across national and linguistic boundaries (**Nyhan**). **Symonds** created a dynamic digital research environment uniting the dispersed contents of two of the most important libraries of the English Renaissance in the *Archaeology of Reading* project with Johns Hopkins and Princeton Universities, enabling scholars to map thousands of manuscript annotations. **Shepherd**, **Flinn**, **Lomas**, **Bunn** were Co-Is in *InterPares Trust*, a research partnership of 70 organizations, in North America, Latin America, Europe, Africa, Australasia, and Asia, including experts in archival science, law, IT, cybersecurity, information governance, digital forensics, and engineering, to improve understanding of information rights and trust in digital environments.

A key priority is to continue to build on our strategic local position in the centre of London's cultural institutions and professional communities, engaging with community groups, users and cultural professionals, to mine rich research environments with innovative potential, for instance research into OpenGLAM (galleries, libraries, archives, museums) for small heritage bodies with the Marx Museum. **Flinn**'s longstanding leadership of Community Archives and Heritage Group connects grassroots heritage groups across the UK. We will draw on these experiences to extend our global academic reach and strengthen our deep research links with key strategic partners, locally, nationally and internationally. For instance, **Bikakis** and **Vlachidis** are active in European digital heritage networks (following *CrossCult* and *ARIADNE*). The *Critical Heritage Europe* network continues to address critical questions, while the joint UCL-Gothenburg Critical Heritage Studies Centre enables us to research with Swedish heritage institutions (**Nyhan**, **Flinn**). **Shepherd** is collaborating on *Real-time rights-based recordkeeping* in Australia (2020-2023).

3. Cultivate an agile, innovative and responsive research culture to build sustainable, future-proof practice. Following the Covid-19 pandemic, it is even more vital and urgent to support UCL's strategic objective 'to inspire and empower research leadership' by future-proofing academic and practice fields to ensure sustainable futures. Our current research developed new methods of engagement and co-created research with professional and marginalised communities, for example, on information literacies for migrants (**Lloyd**, **Hicks**), care experienced adults (**Shepherd**) and in mental health recovery (**Sexton**). **Ramdarshan-Bold** researched diversity in Young Adult (YA) publishing, and developed practical interventions with Words of Colour, Theatre Peckham and Spread the Word, to examine the representation and the experiences of children's authors and illustrators of colour in the British publishing industry. **Lloyd**'s expertise in workplace learning and information behaviour extended understanding about nurse information use, and patient information practices in chronic illness. In *Digital Lives* **Williams** investigated mobile digital technology in the lives of people with learning disabilities. We research the histories and tell the stories of those whose voices were silenced, including pioneering women archivists (**Shepherd**), devalued, feminised labour in digital humanities (**Nyhan**), women booksellers (**Rayner**), black cultural archives (**Ishmael**) and black lives in Old Bailey Online (**Crymble**).

We will invest in sustainable practices, including recruiting, mentoring and promoting excellent and diverse junior staff, guiding doctoral candidates to produce innovative research, obtaining funding for post-doctoral research and fellowships, and building a deeply reflexive research culture to grow the academic research community. We will continue to lead the field in emerging research areas in information rights (**Lomas**, **Sexton**, **Shepherd**), data curation and AI (**Bikakis**), knowledge representation and natural language processing (**Bikakis**, **Vlachidis**), information literacy (**Lloyd**, **Hicks**, **Inskip**), community archives and digital oral history (**Flinn**, **Nyhan**, **Crymble**), and book culture (**Ramdarshan-Bold**, **Rayner**).

Impact strategy
Our research, including but not confined to the submitted impact case studies, exemplifies our commitment to sustaining and transforming real-world scenarios and professional practice across the information sector, including how publics engage with digital information and heritage, now and in the future. Our research has developed innovative software and mobile applications for interactive delivery of digital cultural heritage (**Bikakis**), formulated critical questions underpinning the development and delivery of digital information and scholarly resources to a variety of publics

(**Shepherd**, **Lomas**, **Sexton**, **Rayner**) and critically informed the presentation of digital cultural heritage, resulting in transformed and deeper public engagement at a national and European level (**Nyhan**, **Valeonti**). **Terras**'s work on deep imaging Mummy Cases with University of California, Berkeley and Stanford, and on the Great Parchment Book with London Metropolitan Archives, enabled unprecedented public and scholarly access to digital cultural sources. **Broughton**'s classification research on the structuring of terminologies, expressing faceted structures through web representation languages and systems for automatic metadata generation, and as Associate Editor of the Universal Decimal Classification Consortium and Editor of Bliss BC2, informs the professional practices of library and information professionals world-wide. Our research has empowered professional and other communities to address critical questions in unsettled times, with **Ramdarshan-Bold**'s work inspiring high profile discussion in the press (including *The Guardian*) and across the publishing industry of the barriers facing writers of colour in children's and YA fiction, and **Rayner**'s *Academic Book of the Future* resulting in on-going network events supporting publishers, libraries and academic researchers to rethink the uncertain future of academic publishing. The long-term research-led engagement with community heritage bodies (**Flinn**) supported their greater profile and sustainability in terms of collections and organisation.

Building upon the success of our REF2014 case studies, we have embedded impact and evaluation into the culture of all our research so our researchers appreciate the centrality of evaluative impact from the outset of each project. Our commitment to impactful collaborative research with industry and community partners and to building sustainable, innovative research practices is facilitated by expert-led workshops and one-to-one discussions to insert impact into research activities in bid writing and research design. Making participatory practices and impact central to the MIRRA project design resulted in *FamilyConnect*, a website for care leavers based on project findings, accessed by over 2264 users, and recognized with a UCL Community Award in 2020. MIRRA was chosen to exemplify how UCL is responding to the challenges of the UN's Sustainable Development Goals. Developing the case studies and impact more generally, we have made extensive use of the support and impact funding available from Faculty and central Research Impact and Curation, Knowledge and Enterprise, and Public Engagement teams, to augment our research impact, to design impact data collection tools, to plan innovative events and multimedia presentations, to extend the domain of our research and to capture changes in attitudes and practices resulting from such engagements.

Research integrity
Research integrity is a central tenet of our research culture and we lead developments in research ethics practices across the university. Our research expertise has been central to developing UCL's principles of research governance. **Flinn** has helped shape the institutional approach to Research Ethics and Integrity by representing humanities and social sciences on UCL's Research Ethics Committee (which approves all ethics applications) and on the Working Group which designed new university-wide processes for research ethics decisions, policy and governance. This knowledge is brought into DIS, where **Flinn** oversees research ethics and data protection. **Lomas** led the development across UCL of research data protection training and sits on UCL's GDPR Strategic Programme Board (2018-). She scripted the compulsory online GDPR training which has to date been taken by 24,000 UCL staff and 700 researchers. All our staff and doctoral students take research ethics training. This goes beyond ethical research methods to include authorship, research supervision, equitable acknowledgment of contributions, data management, and internal peer review. Departmental Research Committee, termly, includes ethics as a standing item, ensuring staff understand research policies including UCL's *Research Staff Code of Practice*.

Open research
We are at the forefront of UCL's 'commitment to Open Research and Open Data'. DIS is central to the governance of UCL Press, the UK's first fully OA university press (**Rayner**, **Nyhan**). **Rayner** developed a new form of OA book publishing, Books as Open Online Content (BOOC), inspiring other BOOCs with UCL Press, and she developed an innovative sprint (fast-track) OA publication with Palgrave Macmillan as part of their *Palgrave Pivot* series. **Boswell** and **Canty** created an OA student-led academic journal, *Interscript*, with UCL Press, to disseminate postgraduate, ECR and industry research. We proactively create an open research environment, opting for OA publication

wherever possible for monographs (**Nyhan**, **Flinn**, *Computation and the Humanities*, Springer Open Access, 179,000 downloads; **Jardine**, *Temptation in the Archives*, first OA monograph by UCL Press, 17,495 downloads in 133 countries); open access in print journals (*JDoc, JoLIS, Archival Science*) and online OA journals (*Digital Humanities Quarterly, Information Research*); and making research openly accessible via web platforms (eg Transcribe Bentham Project; *Academic Book of the Future* - UCL Press BOOC, 5358 downloads, OA Palgrave Pivot, 82,000 downloads). UCL's publishers' agreements enable Gold OA in key journals. 96% of UoA articles and conference papers accepted from 1 April 2016 were deposited in UCL Discovery, are Gold OA or qualify for exceptions. **Nyhan** represents A&H and SHS on UCL's Bibliometrics Working Group, which formulated new policy on best practice bibliometrics. **Bunn** and **Nyhan** advised UCL's research data repository implementation to facilitate data capture, access and publication. We have also led and defined debates around OA nationally. Through the AHRC *Academic Book of the Future* project, we worked with academic publishers, policy makers, academics, and booksellers, to research how academic work is produced, consumed, and disseminated. In the Project Report we scrutinised the high levels of support for OA from Arts and Humanities scholars in the UK, and identified key challenges in ensuring OA for REF submissions. This was critical to public debate, voiced at the University Press Redux conference at the BL in 2018, and the OA Monograph Working Group to reshape REF policy on OA (2016-2019). **Rayner** established the annual Academic Book Week in 2015. **Shepherd** and **Duke-Williams** advised ADRC-E/ADRN on national information governance issues around sharing government administrative data and we innovate access services for Census data use via ONS.

2. People

Staffing strategy and staff development
The UoA's 19.6FTE comprises 3 Professors, 8 Associate Professors, 7 Lecturers and 2 Research Fellows. Reflective of our distinctive research strategy, we have, in the light of retirements (**Broughton**, **Stevenson**) and staff recruitment, recrafted our research priorities since 2014 to promote deeper reflexivity in research practice, and to foster creative thinking to 'tackle complex societal problems' (REF5a). Recruitment in this period has taken our disciplines into new areas and demonstrated our commitment to original scholarship. DIS appointed **Lomas** to develop information governance across library, archive and data science; and **Vlachidis** to develop data science and technical skills across library and information science. Recruitment of new scholars in each of our disciplines (**Lomas**, **Sexton** in archives and records management, **Valeonti**, **Crymble** in digital humanities, **Vlachidis** in information science, **Lloyd**, **Hicks** in library studies, and **Ramdarshan-Bold** in publishing) catalyses us as the national leader across information studies.

UCL's *Academic Careers Framework* articulates new promotion criteria which emphasise research excellence while ensuring parity and transparency. During the current REF period, six staff were promoted from Lecturer to Associate Professor, validating our approach to recruit excellent ECRs whom we nurture, develop and advance to leadership roles within UCL, nationally and internationally. An excellent staff development strategy supports all academic staff at whatever stage in their career and across the researcher-practitioner nexus. Particularly notable is our policy to inculcate our ECRs and Research Associates (RAs) into our rich traditions via a well-established programme of one-to-one probationary mentoring, monthly meetings with the Head of Department, and through our ECRs Community of Practice which, since 2018, has supplemented university-wide training. Of nine new researchers appointed since 2014, five were (three are still) ECRs. We employed four RAs on funded projects. Staff teach to their research strengths, enabling us to deliver research-led, world-leading postgraduate programmes. In 2019 we were the first LIS programme outside the USA to receive provisional American Library Association accreditation.

Honouring the VITAE *Concordat to Support Career Development of Researchers*, we rotate administrative responsibilities, committee chairing and institutional citizenship roles to build competencies for promotion. Our research culture values generosity and mutual respect for scholarly inquiry. We promote career development through Supervisors' workshops, Away Days

and research seminars (including doctoral research, neurodiversity in learning, mental health workshops, inclusion and equality training), and mentoring by matching experienced PIs with ECRs for doctoral supervision and grant applications. Two ECRs obtained Fellowships (British Academy, AHRC). Researchers refresh their skills through conference participation and training (eg Research management, Leading research teams, Engagement and impact, Writing for publication). Two staff attended the Senior Women in Leadership programme to enable succession planning. Our strategic priorities include enhancing the happiness and wellbeing of all staff by caring approaches to management: our management team includes the Faculty's inaugural Vice Dean Wellbeing (**Rayner**) and we implemented an email policy 'only in working hours' in 2020. We have regular 'tea and cakes' socials. Two academics are Arena assessors, UCL's professional development pathway accredited by the Higher Education Academy, and advise on Fellowship portfolios. Thirteen staff are Associates and Fellows and five Senior Fellows of the HEA. The pandemic highlighted the need to support staff wellbeing and facilitate their research. We support caring responsibilities when adjusting workloads and working hours. We assist staff and research students through technology and training to research virtually, for instance, **Ramdarshan-Bold** led the 'Professional and Creative Development Virtual Hub for new/emerging Authors Of Colour During COVID-19' funded by UCL Innovation and Enterprise.

We engage across UCL to enable staff development and to contribute to the university's research-led teaching environment. As part of initiatives for UCL's second campus in the Olympic Park, **Rayner** led on the Engagement with Creative and Cultural Industries pathway of the new BA Creative and Applied Humanities, while **Flinn** brought his expertise in community archives into participatory projects by spearheading the development of the Urban Room & Memory Workshop. We engage with UCL Research Domains which improve integration and develop new projects, including **Lomas**, **Bunn** on HeXAI (Human Explainable AI). **Vlachidis** is on the Humanities and Data Science research group of the Alan Turing Institute.

We use UCL's appraisal framework and annual reviews to identify training needs, citizenship roles, career development activities (such as secondments to Faculty) and university projects, journal editing, external reviewing and applying for promotion. All staff have an annual appraisal with their line manager (for academics, the Head of Department) to discuss achievements and career aspirations: all appraisers have attended EDI and appraisal training.

The departmental sabbatical's rota follows UCL's policy of one term sabbatical after three years' service, allowing sustained attention on research (e.g. completion of monographs, development of grant applications, deeper reflective 'blue sky' thinking), and was maintained throughout the pandemic. The productiveness of this approach is evidenced by **Nyhan**'s publication of two monographs published following her 2018 sabbatical; **Shepherd**'s successful submission of an AHRC major research grant application following her 2016 sabbatical.

Individual researchers are nurtured through a strongly collaborative culture of research-sharing and via the strategic use of resources. Faculty and Departmental resources for conferences and networking are guaranteed so staff can test ideas, share findings, develop networks (minimum £1000 per person, per annum). Productivity is improved by: an active research seminar series encouraging research reporting and testing ideas; a 'Critical Friends' group that offers improved support for publication; the bi-monthly 'Shut Up and Write' group (established in 2019) that protects two hours dedicated writing time for doctoral students and staff; a flexible workload model that allows staff to work at home on research at least one day a week. The dynamic research environment encourages and makes room for requests from national and international scholars for research exchange and translation activities. Although space is very limited, we accept a few visiting scholars from the many who apply (eg two of 18 requests in 2019) to provide us with access to expertise and act as a catalyst for synergistic thinking. We welcome scholars from many countries: in 2019 for example, Professor Xinyun Xu from Jiangxi Normal University and Professor Gunilla Widen from Abo Akademi, Turku, Finland.

Research Students

We are training the next generation of researchers and information professionals based on 100 years of leading the field in UK information education. DIS is regarded internationally as a premium

location for doctoral research and we have among the largest and most prestigious cohorts in the UK (especially in archival science, information literacy, and publishing), attracting scholarship candidates from around the world, who progress to academic and senior professional posts. We value highly the doctoral student experience, each new intake of students to DIS is managed as a cohort, supported by the Departmental Graduate Tutor, with peer-to-peer mentoring, to ensure full immersion. There are currently 31 doctoral candidates in DIS, representing an increase over the period, an average intake of 4-6 students, with 11 funded students exceptionally recruited in 2018. Students complete more promptly if fully funded, so we support doctoral students to win scholarships. Since 2014, candidates have won scholarships from AHRC-LAHP (5) (the AHRC DTP: London Arts and Humanities Partnership), Leverhulme, Marie Curie, Commonwealth, Thai, and China Scholarship Commissions, the governments of Kuwait, Algeria, and Saudi Arabia.

We create a rich and vibrant doctoral environment by recruiting excellent students from the UK, Europe, the Middle East and Asia. We match them with the best supervisors in the sub-disciplines, and support them through training. We recruit a diverse doctoral cohort to ensure our research cultures adopt a broad range of perspectives and experiences. Most part-time students work in senior industry and professional roles, supported by their employers (eg Routledge, BL). They bring rich professional experience to combine with academic rigour.

Our doctoral programme benefits from our strong interdisciplinary approach which creates scope for students to address innovative research problems, adapt methodologies and create new knowledge. Interdisciplinary reach is evidenced through doctoral co-supervision with other academic disciplines across UCL (computer science, medical physics, psychology, anthropology, history, archaeology). Similarly, our strong external networks give doctoral candidates access to expertise and supervision (through AHRC collaborative doctoral awards) with The National Archives, Wellcome Collection, BL and at University of Peloponnese, Greece. **Jordan** (BASc) brings his considerable expertise in digital cultures and the digital economy as a research supervisor. Doctoral students have won scholarships for cross-disciplinary placements (eg Eveleigh to UCL Engineering; Knöchelmann to Yale).

The Departmental Graduate Tutor provides academic assistance and pastoral care, in addition to each doctoral student's two supervisors who meet students regularly (at least fortnightly in the first two years). Outstanding doctoral supervision is central to the doctoral experience. DIS's Supervisors Forum encourages reflection on supervisory practice, discussion about challenges and solutions, best practice sharing, and mentoring of less experienced supervisors. We actively engage doctoral students in wider networks, such as CH Europe, and the Gothenburg–UCL partnership. We financially support our doctoral students to present papers and posters at conferences in the UK and internationally.

We have improved timely completions of doctoral theses, by creating a supportive community that builds methodological, theoretical, and practice confidence in candidates. 27 doctorates were successfully completed in the 2013-2020 period, representing a concerted effort to increase completions from nine in 2008-2013. We increased monitoring and support for student progress, via the upgrade process and annual formal departmental reviews, and compulsory first year weekly seminars. We know individual students need tailored support, and raise awareness, through their supervisors, regular emails, and weekly seminars, of UCL-wide support services, wellbeing, mediation, disability services, psychological services, and careers service. We seek advice across UCL where appropriate. Doctoral students benefit from study space and equipment in a refurbished, dedicated PhD room.

Incoming doctoral students are introduced to our research practices via a 26-week seminar programme. Recognising the complexity and uncertainty many candidates experience in the first year, the compulsory weekly seminar covers structure and process of candidature and methodologies employed in the fields. Second and third year students organise peer-to-peer Research Cafés. An annual departmental survey of student interests allows the second and third year programme to be tailored, with a focus on developing researcher practices (e.g. writing for publication, developing a web presence, applying for funding), and advanced methodological training. DIS's lunchtime seminar series gives doctoral candidates confidence in their emerging

ideas and presentation skills, and they observe experienced researchers modelling best practice. Doctoral students take workshops from UCL Learning and Development, UCL's Doctoral School and LAHP in line with VITAE framework, including Public Engagement, Research Impact, Innovation and Enterprise, and maintain a record of progress in their online Log. Building on UCL's Arena One (teaching and learning programme), students develop their CVs by becoming post-graduate teaching assistants. Doctoral students are also part of the principal supervisor's research group giving them access to research practices and activities of the core discipline (e.g. archival science critical reading group).

We have a student representative on our Research Committee, and review doctoral student experience through the annual PRES survey and as part of the quinquennial Internal Quality Review. We also participate actively in Faculty Research Committee to ensure we benchmark our practices.

We boast an enviably well-networked alumni community; our alumni work in every global region (North and South America, Europe, Africa, Asia, Middle East) and hold key professional posts in national archives, libraries and cultural institutions, as well as academic iSchools on several continents. Many doctoral graduates return to senior professional positions (eg Head of Research, UK National Archives; Digital Records and Transfer Manager, UK National Archives; Collections Information Manager, Wellcome Collection), while others make a career in academia (eg Universities of Bamberg, Liverpool, Glasgow, East Anglia, UCL, Chulalongkorn University Thailand, City University of New York), or rise to the top of their fields (eg Secretary General, International Council on Archives). The impact of our research through our alumni is worldwide.

Equality and Diversity
DIS established an Equality, Diversity and Inclusion Group in 2019 with Faculty support, and made its first Athena SWAN Bronze application in 2020, only the second Department in the Faculty to do so. Athena SWAN allowed us to study diversity data for the first time and to take actions towards improvement where necessary and provides a roadmap to deepen our commitment to equality and diversity. Our gender balance for academic staff has remained stable since 2015 (56% female: 44% male), while that for research staff shifted from 50%:50% in 2015 to 80% female in 2019. One of our challenges is the dominance of female recruits throughout the career ladder from PGT (76% female: 24% male in 2019), doctoral students (67% female: 33% male in 2019) to professors (66% female: 33% male in UoA). Another challenge is the low representation of non-white ethnicity: of 56% female academic staff, 6% are BME; all 44% male academics are white. BME representation in the student pipeline in 2018 was 34% among PGT, 26% for doctoral students; to improve on these statistics, we successfully supported BME applicants for doctoral scholarships and sought diversity advice for new hires UCL's 'fair recruitment' support. Ethnicity data for DIS doctoral students indicates an increase in BME students accepted (from 4 in 2017, to 7 in 2018). In our Athena SWAN application, we identified further actions we need to take to improve the diversity of the academic pipeline including better data monitoring, targeted marketing and recruitment, as well as scholarships for under-represented groups. We have succeeded in diversifying the communities of doctoral students and staff in some sub-fields since 2014 (YA fiction; community archives), successfully supported BME academic promotion to Associate Professor, and enabled more inclusive research methods and topics. We encourage staff to make use of UCL's leadership training programmes, including Accelerate to Leadership, and are committed to implementing A&H's race equality pledges.

Structurally, it is our ED&I Group that implements best practice. Mandatory unconscious bias training (100% completion) improves understanding of EDI, and we are developing transformative ally and anti-racist training with support from Faculty. Workshops on mental health, suicide, and neurodiversity awareness and bullying and harassment training are organised for staff. As part of our ED&I agenda we support staff to join inclusion networks.

We reviewed our diversity-inclusive practices and offer flexibility to all staff who request work-life balance changes, or have returned from long-term sick leave. Our proactive practice (pre-pandemic) enabled academic and administrative staff to work remotely for one or two days per

week to alleviate time and travel costs and to accommodate caring responsibilities. Communication technologies (Teams, Zoom) ensure that staff maintain contact. We hold all department meetings within core hours (10.00-16.00). Our compassionate approach guarantees that staff and research students return to work successfully after periods of parental and maternity leave (two staff and one doctoral student took maternity leave, two staff took parental leave) or ill health (three staff supported to return after serious illness). UCL's generous maternity leave provisions include an additional sabbatical term to re-start research before a return to work, while reduced duties due to sickness are agreed by the Head of Department with advice from Occupational Health and HR. The UCL Covid-19 Career Support Scheme is an equity- and inclusion-based response to the understanding that the pandemic has impacted individuals in our community differently. Staff at all career stages are equally supported to make research grant applications and supported for reward, such as additional increments and promotion. Part-time staff have equality of opportunity, even if the quantity of activity is constrained by their work hours. Career pathways for part-time staff are the same as for full-time staff. One Lecturer worked part-time for 10 years but was promoted to full Professor.

The UoA's REF Group had 50:50 gender balance, including senior staff in each sub-discipline, ECRs, and members of the ED&I Group. The REF Group undertook EDI training to support output review and selection, determination of independent researchers, and choice of ICSs. UoA staff were updated regularly on the submission and were encouraged to ask the REF or ED&I Groups for advice. We reviewed the UCL Equalities analyses, and are pleased to see that the selection of research-only staff is gender balanced, and that women are over-represented in the output distribution. Low numbers and incomplete data limit the use of the ethnicity data, but we note that the percentage of outputs attributed to staff identifying as white is slightly below the analysis baseline.

3. Income, infrastructure and facilities

Income
The UoA has a very strong record of external income generation at both national and international levels, winning research grant awards worth over £3.7m since 2014, including over £1.97m from UKRI and research funders, plus £0.55m from EU, and from non-EU and charities funders. Research income of £2.9m during 2014-2020 has allowed us to collaborate in large national and international research consortia (eg *Academic Book of the Future*, AHRC, **Rayner**; *CrossCult*, EC, **Bikakis**; *Oceanic Exchanges*, ESRC, **Nyhan**), and to lead scholarly projects (eg *British Book Trade*, AHRC, **Stevenson**; *Enlightenment Architectures*, Leverhulme, **Nyhan**; *Archaeology of Reading*, Mellon, **Symonds**; *CelSIUS*, ESRC, **Duke-Williams**; *CODEsign*, EC, **Smallman**). In addition, researchers have won 12 competitive UCL Global Engagement, Public Policy, E-learning Environments, and Beacon Bursary public engagement funding. For example, £4000 to pilot public policy engagement with care leavers (**Sexton**); **Ramdarshan-Bold** to increase awareness of theatre audiences of the experiences of authors of colour; £17,000 to lead collaborative developments in new disciplines, including establishing digital humanities curricula and research in China (**Mahony**); and engaging diverse and excluded communities in the emerging field of science communication in South Africa (**Smallman**).

Significant funded research projects since 2014, arranged by theme:

Discovery and (re)use of digital cultural heritage (total £1.178m):

Project name	Funder	Funding awarded to UCL	Project dates	Researchers
Critical Heritage Studies Europe (CHEurope)	H2020 Marie Skłodowska-Curie Action	£187,000	2016-2020	Nyhan, Flinn
CrossCult	Horizon 2020	£186,000	2016-2019	Bikakis, Vlachidis, Terras

Oceanic Exchanges: Historical Newspaper Repositories	ESRC	£78,000	2017-2019	Nyhan
ARIADNE (Advanced Research Infrastructure for Archaeological Dataset Networking in Europe); ARIADNEPlus	EU Seventh Framework; H2020	Overall budget €6.6m	2013-2017, 2019-2022	Vlachidis
Enlightenment Architectures: Sir Hans Sloane's catalogues	Leverhulme Trust	£85,000	2016-2021	Nyhan
Complex analysis of large scale digital collections	JISC	£18,000	2015	Terras
Nondestructive imaging of Mummy Mask Cartonnage	Charities Aid Foundation	£54,000	2015-16	Terras
English Book Owners	Oxford Lyell Fund & Bibliographical Society	£19,000	2020-2024	Symonds
Archaeology of Reading	Mellon Foundation	£263,000	2014-2016, 2016-2019	Symonds
Dynamic Dialects	AHRC	£12,000	2014-2015	Beavan
Chronotropic ground for mapping literary texts	AHRC	£32,000	2017-2020	Beavan
British Book Trade	AHRC	£81,000	2014	Stevenson
Enabling independent museums to access technological innovation	AHRC	£163,000	2019-2021	Bikakis, Valeonti

Data curation and governance (total £1.276m):

Project name	Funder	Funding to UCL	Project dates	Researchers
CeLSiUS; CALLS Hub	ESRC	£576,000	2012-2025	Duke-Williams
UK Data Service	ESRC	£525,000	2012-2017, 2017-2022	Duke-Williams
Administrative Data Research Centre-England- information governance	ESRC	£175,000	2013-2018	Shepherd, Duke-Williams, Sexton

Community participatory research (total £0.696m):

Project name	Funder	Funding to UCL	Project dates	Researchers
Information rights ecology: MIRRA (Memory-Identity-Rights in Records-Access); MIRRA+	AHRC	£330,000	2017-2019, 2020-2021	Shepherd, Lomas, Flinn, Sexton

Representation of children's authors and illustrators of colour	BookTrust	£30,000	2007–2020	Ramdarshan-Bold
Digital Lives	British Academy	£278,000	2016-19	Williams
Real-time rights-based recordkeeping	Australian Research Council	£58,000	2020-2023	Shepherd

Public policy (total £0.536m):

Project name	Funder	Funding to UCL	Project dates	Researchers
Academic Book of the Future	AHRC	£307,000	2014-2017	Rayner, Canty
E-legal deposit in academia	AHRC	£26,000	2017-2019	Terras
Record DNA Network	AHRC	£15,000	2017-2018	Lomas
Turing Fellowship	Alan Turing Institute	£6000	2018-2020	Smallman
Society in Innovation and Science through CODEsign	EC	£182,000	2018-2021	Smallman

Infrastructure and facilities

UCL infrastructure investment includes successful bids for Research Capital Equipment Funds in 2018 and 2019 (total £394,000). This enabled significant new provisions in the Digitization Suite: in 2019, purchase of a super light element micro x-ray fluorescence spectrometer for heritage imaging to detect illegible text and to determine the composition of pigments, enabling owners of heritage objects to use a single, secure laboratory; and in 2018, portable multispectral imaging equipment for heritage objects, which acquires images in 12 colours, including ultraviolet and infrared, and filters. These techniques have a wide range of research applications with manuscripts, papyri, epigraphy and document analysis, with the benefits of portable equipment, enabling research collaborations with museums, archives and libraries.

The infrastructure of our research centres and their research strategies align closely with our strategic aims to address real-world information challenges through collaborative research with community and professional partners; to be local and be global; and build sustainable practices. We take advantage of Faculty and UCL support (eg Research Development Manager; European Office) for grant funding, writing, peer reviewing, impact capture, to supplement DIS support in costing and administering grants. We have a dedicated subject librarian who provides tailored training for staff and students, access to exceptional archival, print, e-journals and database subscriptions through UCL Library, OA publishing agreements with major journal publishers, and UCL Library funding to purchase books (£9000 pa). We have access to world-class research libraries in the locality, through the University of London, the national research collections at the BL and the National Archives. We have invested in improving the facilities for our doctoral students by refurbishing their work room, providing new desks and ICT with the support of Faculty IT, printing facilities, and improving their pandemic working settings at home through laptop risers, keyboards, lumbar supports etc. Postgraduate students also have a refurbished common and work room with new networked ICT provision.

4. Collaboration and contribution to the research base, economy and society

Our staff are world-leading in our collaborations, our contributions to building the research base of our disciplines and through research which positively impacts society.

Collaboration

Our international collaborative networks are crucial to our research culture, allowing us to engage with academic and practitioner partners in cultural heritage, information studies, public policy and

related communities and to deliver research-led outcomes. We support research-practice synergies by enabling co-research with industry, government, charity and public bodies and appointing practitioners to steering committees of our research groups and as Honorary Professors (including Elizabeth Denham, the UK's Information Commissioner). Our research resulted in a deeper understanding of the impact of information studies on other disciplines, and vice-versa, including bringing archival studies into critical heritage studies with archaeology and museology (**Flinn, Nyhan**), critical social questions into the study of AI and digital humanities (**Bikakis, Bunn, Nyhan, Vlachidis**), and digital cultural heritage (**Terras, Nyhan, Valeonti, Vlachidis, Symonds**). We have been active in 21 interdisciplinary collaborations, across the EU (eg *CrossCult*; *ARIADNE*), North America (eg cross-institutional partnerships with Universities of Toronto and Yale) and worldwide (eg *InterPARES Trust* with 70 partners). Researchers collaborate with key national cultural institutions, local to UCL but with global reach and significance, to enhance access to collections, including *Enlightenment Architectures* with the British Museum, and collaborations with National Gallery, Natural History Museum, Tate, London Metropolitan Archives, Science Museum, RAF Museum, and Fitzwilliam Museum. We created digital resources for scholars, including the libraries of Gabriel Harvey and John Dee in *Archaeology of Reading* with Universities of Johns Hopkins and Princeton.

We create opportunities to share research findings and initiate research ideas, including co-organising Archives and Society seminars at the Institute of Historical Research, presenting The National Archives research seminars, the Centre for Critical Heritage Studies seminar series and creating a new collaborative partnership, Bloomsbury CHAPTER (Communication History, Authorship, Publishing, Textual Editing and Reading) with the Institute of English Studies. We forge strong alliances with significant groups in London to create a research base for publishing studies, with Worshipful Company of Stationers, Bloomsbury Publishing, Faber, and Macmillan. **Lloyd** founded the Maris (Migrants and Refugee) network, bringing together information science researchers to focus on information problems in the forced migration field, such as Supporting Information Practices in Refugee Transition (SpIRiT).

Doctoral research, including AHRC Collaborative Doctoral awards, embeds research in professional practice, co-supervised with industry professionals (including at The National Archives, Welcome Collection, Black Cultural Archives, British Museum). Excellent doctoral work is recognised by industry (eg Seles's doctoral thesis won Digital Preservation Coalition Award).

Contribution to economy and society
A notable strength is the professional and industry experience of many of our academic staff. **Hicks**, for instance, was formerly librarian at the University of Colorado, Boulder; **Sexton**, was formerly Head of Research at The National Archives. Such grounding in industrial practice greatly enhances the impact of our research. Recognition of our reach outside HE is evidenced by **Lomas**'s invitation to speak in Parliament and at the Annual International Regulatory Affairs Symposium. She chaired the Working Group which wrote the UK's GDPR guidance on archival derogations for the UK National Archives and the Information Commissioner. **Lomas** served on the Lord Chancellor's Advisory Committee for National Archives and Records and the Forum on Historical Manuscripts and Academic Research deputizing as Chair for the Master of the Rolls, and is a member of the International Standards' committees on records management and privacy technologies. Staff consultancy embeds research in practice and professional communities, including **Duke-Williams** advising the National Statistician on the future of the National Census as an invited expert on the Methodological Assurance Review Panel; **Vlachidis** advising the Welsh Assembly Government on language technology. **Lomas** provides archival, records management and information governance advice and training to the Duchy of Cornwall estate and AirTanker Ltd. **Bikakis** is on the steering committee of RuleML, which collaborates with the W3C on standardization of rules on the Web. Practical tools and systems which benefit the economy include *MeThinks*, a system for automated content management on the Social Web (**Bikakis**) and a novel Natural Language Processing toolkit for the Welsh language (**Vlachidis**). *Archaeology of Reading* (**Symonds**) informed the International Image Interoperability Framework, a W3C standard for presenting, sharing, and annotating images on the web used by cultural sectors.

UCLDH provides research-led consultancy and specialist digitization services, through the Industry Advisory Panel (including Adobe, Microsoft which sponsors a DIS student prize, IBM). We nurture an enriching dialogue between our research and public engagement through annual public lecture series from leading thinkers and scholars in the archival field (Jenkinson Lecture), publishing (Stevenson Lecture), and digital humanities (Hockey Lecture). We have delivered UCL LunchHour Lectures (eg **Duke-Williams** on the Census, **Shepherd** on care experienced information rights) and events in UCL's annual Festival of Culture, reaching beyond academic audiences to bring our research to wider audiences.

We lead research with cultural and community organisations to deliver impact. For example, we led a schools' engagement workshop as part of the ESRC Festival of Social Science; we researched the economic benefits of digitization and provided new knowledge on cultural heritage metadata modelling (with the Fitzwilliam Museum, National Gallery and British Museum); we implemented research findings working with community charities, such as Black Cultural Archives, the Care Leavers' Association and Family Action; and we developed responses to real-world issues collaboratively with professional associations, such as the UK response to RiC-CM with the Archives and Records Association. We engage with wider publics interested in our research, through media interviews on BBC Local Radio, Austrian Public Radio, blogs (including blog for the ESRC about ITV's *63 Up*), via YouTube and Twitter, and articles in *Research in Practice*, *The Conversation* and *Nature*.

Contributions to research base and sustainability of disciplines
We provide positive leadership in directing the scholarly development of our disciplines internationally. Scholars are invited abroad as visiting researchers (including **Flinn** to the Universities of Gothenburg and Monash 2018; **Ramdarshan-Bold** to Australian National University 2019; **Wintersgill** to University of Tyumen, Russia 2019; **Lloyd** to University of Boras, Sweden 2019; **Williams** to Universidade Federal de Minas Gerais, Brazil 2017, 2019; **Crymble** to Luxembourg 2019; **Bikakis** to Paris-Est Creteil 2014). We take a lead in training the next generation of humanities researchers, exemplified by **Sexton**'s appointment as Deputy Director (Collaborations and Partnerships) with LAHP (AHRC's London Arts and Humanities Partnership) to leverage her expertise as former Head of Research at The National Archives. She has been instrumental in facilitating doctoral research with cultural partners, endangered by furlough and closure of galleries in 2020. We educate internationally through our publications cited on university syllabi, indicating our reach (*Open Syllabus*): **Lloyd** on 22 university syllabi; **Nyhan** on 50; **Flinn** on 88; **Jordan** on 88; **Shepherd** on 288. **Lloyd**'s H-index (33) and citation rate (2500) in information literacy evidence the productivity and reach of her research.

Our researchers shape current and future research by editing, and serving on editorial boards, for 34 journals and many conference reviewing committees internationally (eg **Hicks**, editor, *Journal of Information Literacy*; **Jordan**, editor, *Global Media and China*; **Bikakis**, *3rd International Workshop on Semantic Web for Cultural Heritage*), book series (**Rayner**, CUP, *Elements*) and guest edited SIs, (eg **Bikakis**, *Sensors*; **Flinn**, *Archival Science*). Interdisciplinarity is central to our contribution, exemplified by publications in peer-reviewed journals in other fields, including *International Population Studies* (**Duke-Williams**), *Preventive Medicine* (**Duke-Williams**), *Child and Family Social Work* (**Shepherd, Flinn, Lomas**), *Big Data and Society* (**Shepherd, Sexton**), *PLoS ONE* (**Lomas**), *Advances in Education* (**Lloyd**), *Journal of Interdisciplinary History* (**Flinn**), *2016 IEEE International Conference on Big Data* (**Bunn**), *Journal of Research in Special Educational Needs* (**Williams**), *Proceedings of Electronic Visualisation and the Arts* (**Valeonti**), *Digital Scholarship in the Humanities* (**Nyhan**).

We cultivate scholarly exchanges which lead to research innovation. We organised, in this review period, 202 seminars at UCL and elsewhere, including long running series (eg Community Archives & Heritage Conference 2014-2020; Digital Classicist London Seminars). We also organised or hosted a further 78 conferences and workshops, including as programme committee and track chairs (eg Human-centred Explainable AI Workshop; 8th International Web Rule Symposium). We have delivered 93 invited keynotes, as well as 170 international conference and workshop papers, in addition to UK presentations. Keynotes include International Council on

Archives 2019, Australia; I-CHORA 7 International Conference, Amsterdam; InterPARES Results and New Directions, Costa Rica; London Book Fair; University Redux Conference; and Futurebook Conference.

We provide extensive academic service internationally by regularly assessing promotion and tenure files (including UCLA, Toronto, UBC, Peking University, Witwatersrand). We provided research council evaluations and peer review for UKRI including MRC, and for Asian, European and North American national research councils, 47 times, and served on 11 learned society committees. **Shepherd** was appointed to REF2014 and 2021 sub-panels. **Flinn** provided rapid peer review of COVID research proposals for AHRC and ESRC. We have examined 34 PhDs including for Imperial College, Royal Holloway, Goldsmiths, University of Crete, Aristotle University of Thessaloniki, University of Copenhagen, Monash University, University of Pittsburgh. Researchers have won 9 prizes and awards, including a Fellowship of Academy of Social Sciences (**Shepherd**).

Our research has local and international impact; our interdisciplinary and cross-disciplinary research collaborations are extensive; our doctoral graduates progress to global academic and professional positions. All these exemplify and consolidate our aspiration to be the leader in information studies research, to continue to make a distinctive contribution to our unique group of disciplines and to transform how information is understood in society.